

## CLAIMS

What is claimed is:

1. A switch, comprising:
  - a plurality of ports;
  - a plurality of link up/down detection logic units, each link up/down detection logic unit is associated with a port and detects a change in the state of a link associated with the port; and
  - a configuration validation checker coupled to each of the link up/down detection logic units, said configuration validation checker causes the switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change.
2. The switch of claim 1 wherein each link up/down detection logic unit informs the configuration validation checker when a link to an associated port becomes non-functional, and the configuration validation checker responds by discarding all packets.
3. The switch of claim 1 wherein each link up/down detection logic unit informs the configuration validation checker when a link to an associated port becomes non-functional, and the configuration validation checker responds by discarding all packets destined to that link.
4. The switch of claim 1 wherein each link up/down detection logic unit informs the configuration validation checker when a non-functional link to an associated port becomes functional, and the configuration validation checker responds by:
  - receiving an identifier value from an entity coupled to the switch via the functional link;
  - comparing the identifier value received from the entity with topology information contained in the switch; and
  - if the identifier value matches a value in the topology information, permitting the switch to route packets over the functional link; or

if the identifier value does not match a value in the topology information, discarding all packets targeting the functional link.

5. The switch of claim 1 wherein said configuration validation checker receives topology information from an entity external to the switch and compares the received topology information to topology information contained in the switch.

6. The switch of claim 5 wherein if the topology information contained in the switch does not comport with the topology information received from the external entity, preventing the newly received topology information from being used by the switch.

7. A switch, comprising:  
a plurality of ports;  
a plurality of link up/down detection logic units, each link up/down detection logic unit is associated with a port and detects a change in the state of a link associated with the port; and  
a means for causing the switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change.

8. The switch of claim 7 further including a means for receiving an indication from the link up/down detection logic units that a link to an associated port has become non-functional and a means for ceasing routing of all packets.

9. The switch of claim 7 further including a means for receiving an indication from the link up/down detection logic units that a link to an associated port has become non-functional and a means for ceasing routing of all packets destined to that link.

10. A network, comprising:  
a plurality of switches coupled together;

at least one end node coupled to at least one switch;

wherein at least one switch includes:

- a link up/down detection logic unit associated with a port, said link up/down detection logic unit detects a change in the state of the link; and
- a configuration validation checker coupled to the link up/down detection logic unit, said configuration validation checker causes the switch to change its routing behavior with regard to the port if the link up/down detection unit has detected a state change.

11. The network of claim 15 wherein the link up/down detection logic unit informs the configuration validation checker when the link becomes non-functional, and the configuration validation checker responds by rejecting all packets.

12. The network of claim 15 further including a plurality of ports and a link up/down detection logic associated with each port, and wherein each link up/down detection logic unit informs the configuration validation checker when a link to an associated port becomes non-functional, and the configuration validation checker responds by rejecting all packets destined to that link.

13. A method performed by a switch contained in a system, comprising:  
the switch detecting a link down event associated with said switch, said link down event indicative of a link from the switch to an entity becoming non-functional;  
receiving a packet into said switch;  
the switch determining if said packet is to be routed out through a port associated with the detected link down event; and  
if the switch determines that the packet is to be routed out through a port associated with a detected link down event, the switch discarding the packet.

14. The method of claim 13 further including if the switch determines that the packet is to be routed out through a port associated with a detected link down event, discarding all packets received by the switch.

15. The method of claim 13 further including detecting a link up event associated with said switch indicative of a newly established link from the switch to an entity and requesting the entity to provide a unique identifier to the switch.

16. The method of claim 15 further including the switch receiving a unique identifier from the entity, comparing the unique identifier received from the entity to state information contained in the switch and, if the unique identifier from the entity does not match a value in the state information, discarding a packet destined for the entity.

17. The method of claim 16 wherein further including if the unique identifier from the entity matches a value in the state information, permitting packets destined for the entity to be routed from the switch to the entity.